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10/056,304	01/23/2002	Pascal Roncalez	120113.401	9761
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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC			SOTOMAYOR, JOHN	
701 FIFTH AVE			ART UNIT	
SUITE 6300			PAPER NUMBER	
SEATTLE, WA 98104-7092			3714	

DATE MAILED: 12/17/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/056,304

Applicant(s)

RONCALEZ ET AL.

Examiner

John L Sotomayor

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Response to Amendment***

1. In response to the amendment filed September 19, 2003, claims 1-30 are pending.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 17-18, 20, 24 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Hutchings (US 6,305,221).

Regarding claim 1, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal, a processor coupled to the sensor assembly configured to determine at least a movement identification in response to the acceleration signal (Col 4). In the specification on page 1, line 18, applicant states that “accelerometers will always detect static and dynamic acceleration”. In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process only the static acceleration signal, which is inherent in the

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signal output from any and all accelerometers used on a human form, to derive static acceleration.

1. Regarding claim 2, Hutchings discloses a sensor assembly comprising at least a first and a second static acceleration sensor to be mounted to the human body and generating at least a first and a second static acceleration signal, a processor coupled to the sensor assembly configured to determine at least a movement identification in response to the first and second acceleration signals (Col 4). ). In the specification on page 1, line 18, applicant states that “accelerometers will always detect static and dynamic acceleration”. In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process only the static acceleration signal, which is inherent in the signal output from any and all accelerometers used on a human form, to derive static acceleration.
2. Regarding claim 3, Hutchings discloses a processor and display device configured to provide a new and improved three-dimensional tracking of extremities (Col 5, lines 62-65).
3. Regarding claim 17, Hutchings discloses a sensor assembly configured to be mounted to the human body and configured to generate acceleration signals about a first axis parallel to the direction of travel and a second axis perpendicular to the first (fig 3), a processor configured to receive first and second signals and determine at least a movement type and a movement pattern (Col 4), and a display device couple to the processor to display at least the movement type and movement pattern (fig 16). In the specification on page 1, line 18, applicant states that “accelerometers will always detect static and dynamic acceleration”. In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process

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only the static acceleration signal, which is inherent in the signal output from any and all accelerometers used on a human form, to derive static acceleration.

4. Regarding claim 18, Hutchings discloses a display device configured to display real-time, continuous information regarding movement type and movement pattern (Col 2, lines 60-67, Col 3).

5. Regarding claim 20, Hutchings discloses a sensor apparatus configured to be mounted to a human body to generate first and second signals corresponding to static acceleration about first and second axes, respectively (Col 5), and a processor and output device to receive the first and second signals to output real-time, continuous information including an identification of the movement patterns and variations in movement patterns over time (Col 5 and Col 6, lines 1-30). In the specification on page 1, line 18, applicant states that “accelerometers will always detect static and dynamic acceleration”. In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process only the static acceleration signal, which is inherent in the signal output from any and all accelerometers used on a human form, to derive static acceleration.

6. Regarding claim 24, Hutchings discloses mounting a plurality of accelerometers to the human body configured to generate signals corresponding to variations in the position of the accelerometers with respect to the vertical axis, and receiving the signals from said respective accelerometers and processing the signals to determine the identification of the movement of the human body about the vertical axis and changes in the movement over time (Col 5, lines 13-67 and Col 6, lines 1-30).

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7. Regarding claim 30, Hutchings discloses sensing repetitive movement of a selected area of the human body about a first and second axis and generating first and second static acceleration signals, processing said signals to identify movement count, movement type, and to provide a display signal, and receiving the display signal and displaying repetitive movement pattern corresponding to the first and second signals (Col 5 and 6).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 4-5,8-10,19,21,25 and 26, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings in view of Kaufman (US 6,251,048).

11. Regarding claims 4 and 26, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not specifically disclose an apparatus and method

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configured to display the breathing pattern of a human body. However, Kaufman teaches an exercise apparatus configured to monitor and display the breathing pattern of a person performing an exercise (Col 4, lines 58-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide an exercise apparatus configured to monitor and display the breathing pattern of a person performing an exercise. Combining the apparatus disclosed by Hutchings with the teaching of Kaufman produces an exercise system configured to allow a user to monitor a number of biometric parameters during exercise, such as breathing pattern, to improve the exercise effectivity.

12. Regarding claims 5, 8 and 21, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not specifically disclose an apparatus configured to display the breathing pattern (claims 5, 8 and 21) of a human body or a swimmer's stroke pattern (claim 5). However, Kaufman teaches an exercise apparatus configured to monitor and display the breathing pattern of a person performing an exercise (Col 4, lines 58-67) and a swimmer's physical parameters (Col 6, lines 18-53). ). In the specification on page 1, line 18, applicant states that "accelerometers will always detect static and dynamic acceleration". In processing the signal from an accelerometer for static acceleration an apparatus would need to sample and process only the static acceleration signal, which is inherent in the signal output from any and all accelerometers used on a human form, to derive static acceleration. Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings with an exercise apparatus configured to monitor

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and display the breathing pattern and stroke pattern of a swimmer as taught by Kaufman for the purposes of producing an exercise system configured to allow a user to monitor a number of biometric parameters during exercise, including breathing and stroke patterns, to improve a swimmer's ability.

13. Regarding claim 9, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not specifically disclose a device adapted for use with a swimmer. However, Kaufman teaches an exercise device that may be attached to a human body is adapted for use by a swimmer (Col 6, lines 18-53). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings with an exercise device with accelerometers positioned to measure at least one vertical axis and an axis parallel to the first axis adapted for use by a swimmer as taught by Kaufman for the purposes of producing an exercise system configured as an exercise device with accelerometers positioned to measure at least one vertical axis and an axis parallel to the first axis adapted for use by a swimmer to improve a swimmer's ability.

14. Regarding claim 10, Hutchings discloses a device in which the first and second axes are positioned parallel to the surface of the earth (fig 1).

15. Regarding claim 19, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not specifically disclose a device configured to generate



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audible sounds corresponding to at least movement type and movement pattern. However, Kaufman teaches a device with a sound generation circuit configured to generate audible sounds corresponding to physical activity of a plurality of exercises (Col 5, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings with an audible capability configured to generate audible sounds corresponding to at least movement type and movement pattern as taught by Kaufman for the purposes of producing an exercise system configured to provide audible check points and encouragement to assist a user in exercise improvement.

16. Regarding claim 25, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings discloses a method for mounting a sensor to an athlete's body with sensors to detect and track movement along at least two axes parallel to one another and generating at least two signals therefrom, receiving and processing the signals to determine variations over time and real time, continuous observable output of the variations (Col 4 and fig 16). Hutchings does not specifically disclose that the athlete is a swimmer. However, Kaufman discloses an exercise method which may be used by a plurality of athletes, including swimmers (Col 6, lines 18-33). Therefore, it would have been obvious to one of ordinary skill in the art to provide an exercise method for mounting a sensor to an athlete's body with sensors to detect and track movement along at least two axes parallel to one another and generating at least two signals therefrom, receiving and processing the signals to determine variations over time and real time,

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continuous observable output of the variations as disclosed by Hutchings with an athlete who is a swimmer as taught by Kaufman for the purposes of producing an exercise system for allowing continuous improvement of a swimmer's technique.

17. Claims 6-7, 11-16 and 27-29, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings in view of Kaufman in further view of Miley (US 5,921,890).

18. Regarding claims 6 and 28, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not disclose nor does Kaufman teach an exercise device or method with a processor configured to determine and display a swimmer's stroke pattern.

However, Miley teaches an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern and stroke count (Col 2, lines 50-67).

Therefore, it would have been obvious to one of ordinary skill in the art to provide an exercise device with a processor configured to determine parameters associated with swimming as disclosed by Hutchings/Kaufman to include stroke pattern and stroke count as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability to control stroke movement.

19. Regarding claims 7 and 27, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not disclose nor does Kaufman teach an exercise device or method with a processor configured to determine and display a swimmer's stroke pattern.

However, Miley teaches an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern and stroke count (Col 2, lines 50-67). The

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kick is an inherent portion of the stroke, therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings/Kaufman with an exercise device with a processor configured to determine parameters associated with swimming, including kick pattern and kick count as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability to control stroke movement.

20. Regarding claims 11, 12, and 29, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal (claims 11 and 29) and the sensor assembly configured to generate static acceleration signals in response to tilting and rolling movements of the swimmer's body (claim 12) (Col 20, lines 49-67). Hutchings does not disclose nor does Kaufman teach an exercise device with a processor configured to determine and display a swimmer's movements (claims 11 and 22) including stroke pattern (claims 12 and 29). However, Miley teaches an exercise device with a processor configured to determine parameters associated with swimming (Col 2, lines 50-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings/Kaufman with an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern, stroke count, stopping and reversing to turn as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability.

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21. Regarding claims 13 and 14, Hutchings discloses an exercise device with a transmitting means with at least a bus for conveying data from the processor to the communication device (claim 13) and a transmitting means with a radio frequency transmitter for conveying data from the processor to the communication device (claim 14) (fig 16, Hutchings).

22. Regarding claims 15, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not disclose an earpiece configured to convey audible sounds corresponding to at least the swimmer's stroke type and stroke pattern. However, Kaufman teaches transmitting audible sounds (Abstract) and Miley discloses that these audible sounds may be transmitted to a swimmer through an earpiece (Col 3, line 41 to Col 4, line 6). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal and transmitting audible sounds as disclosed by Hutchings/Kaufman with an exercise device with an earpiece configured to convey audible sounds corresponding to at least the swimmer's stroke type and stroke pattern as taught by Miley for the purposes of producing an exercise device that may be more easily worn and monitored by a swimmer.

23. Regarding claims 16, Hutchings discloses an exercise device with a transmitting means for conveying data from the sensor assembly to the processor (fig 16, Hutchings).

24. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings in view of Miley.

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25. Regarding claim 22, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not disclose an exercise device with a processor configured to determine and display a swimmer's movements (claim 22). However, Miley teaches an exercise device with a processor configured to determine parameters associated with swimming (Col 2, lines 50-67). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings with an exercise device with a processor configured to determine parameters associated with swimming, including stroke pattern, stroke count, stopping and reversing to turn as taught by Miley for the purposes of producing an exercise device that may be used to improve a swimmer's ability.

Regarding claim 23, Hutchings discloses a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal. Hutchings does not specifically disclose a device configured to generate audible sounds corresponding to at least movement type and movement pattern. However, Kaufman teaches a device with a sound generation circuit configured to generate audible sounds corresponding to physical activity of a plurality of exercises (Col 5, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art to provide a sensor assembly comprising at least one static acceleration sensor to be mounted to the human body and generating at least one static acceleration signal as disclosed by Hutchings with an audible capability configured to generate audible sounds corresponding to at least movement type and

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movement pattern as taught by Kaufman for the purposes of producing an exercise system configured to provide audible checkpoints and encouragement to assist a user in exercise improvement.

### *Response to Arguments*

Applicant's representative advances a number of arguments why the Hutchings reference does not apply to the applicant's claims. The two primary arguments are Hutchings teaches using only the dynamic acceleration for the measurement of length of travel and that the component of static acceleration must be avoided. These arguments are unpersuasive as Hutchings uses the static acceleration component of the accelerometers signal as a means for calculation of the static acceleration due to gravity, and gravity measurements are important to the apparatus disclosed by Hutchings as gravity measurements obtained at the beginning of a cycle are utilized to correct for the effect of gravity in the reference frame during the cycle (Col 4, lines 47-49). Thus the static acceleration signal from the accelerometer is gathered, analyzed and used to assist in the determination of at least movement identification, as claimed in claim 1 of the instant application.

The office action looks to the Kaufman reference for the teachings of utilizing the signals from a plurality of measurement devices such as an accelerometer to produce key parameters such as stroke count, lap count and stroke detection for a swimmer, all of which Kaufman provides as a teaching to the disclosure of the Hutchings reference. Thus, the combination of the Hutchings and Kaufman references disclose or render obvious the portions of the claimed invention as shown in the above office action.

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For responses to the balance of the applicant's concerns as provided in the remarks section of the amendment, please see the office action above.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bernacki et al (US 5,391,080) for a discussion of swimming instruction and training using accelerometers.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

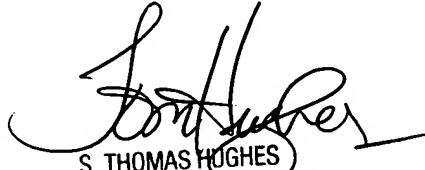
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John L Sotomayor whose telephone number is 703-305-4558. The examiner can normally be reached on 6:30-4:00 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Hughes can be reached on 703-308-1806. The fax phone number for the organization where this application or proceeding is assigned is 703-746-8361.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4558.

jls  
December 9, 2003



S. THOMAS HUGHES  
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